

Article

Sustainability Leaders' Perceptions on the Drivers for and the Barriers to the Integration of Sustainability in Latin American Higher Education Institutions

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Abstract: Higher education institutions (HEIs) have been steadily progressing towards the integration of sustainable practices in their structures and operations. Several studies have reported the variety of drivers of change and the barriers to change that universities have found in the integration process. The present investigation is aimed at further characterizing and ranking the drivers for, and barriers of, sustainability integration in HEIs within their structures and operating functions. Open-ended expert opinion interviews of key sustainability leaders appointed at 45 HEIs from 10 Latin-American countries were conducted in order to learn lessons from their diverse experiences of the process. Additionally, a thematic workshop on HEI sustainability was organized to facilitate further discussions between 23 sustainability scholars and/or national coordinators of university networks from 11 Latin American countries. As a result, 15 barriers were identified as hindering the institutionalization of sustainability in HEIs. This study also examined the relationship between these reported barriers with 13 main drivers that were identified to be facilitating the integration of sustainable practices within the organizational and academic structures at the universities. The strong correspondence between the several observed drivers for, and barriers to, change highlights the importance of strategic planning that offers integrated actions. The findings of this paper can serve as a reference to assist HEIs in identifying drivers of, and barriers to, sustainability, so that the former can be fostered and the latter addressed effectively. This can help identify and plan targeted actions to make the transition towards sustainability in HEIs more natural and effective.

Keywords: organizational change management; universities; Latin America; leaders; incorporation; institutionalization

1. Introduction

The 2030 Agenda with the 17 Sustainable Developments Goals (SDG) is the newest plan of action adopted by the United Nations to make the way for achieving global sustainability [1]. This agenda is a tool to put in place strategic actions and shared efforts between countries and confront the global challenges of modern societies, such as poverty, hunger and social inequalities, among other problems, leading to a stalemate on the improvement of quality of life and the environment.

In this context, universities play a key role as agents of change to transform the world as their actions on building fairer, more equitable and sustainable communities in their campuses can

be taken as an exemplary reference for the society [2–4]. This implies that universities face the challenge of integrating sustainability in all of their operations and structures, so that the changes adopted are not isolated actions by some departments or personnel, but are institutionalized at all levels [5–7]. According to some researchers, in order to achieve the necessary changes, universities should meet three important requirements: (1) ongoing communication; (2) systems of support; and (3) leadership [8]. Other studies point out that a committed institutional framework provides the necessary stability to the processes of change, thus facilitating institutionalization [9]. Therefore, the more engaged the university members are as agents of change towards sustainability, the better an example will the universities provide to the society.

The positioning of universities as active promoters of sustainability has been expressed over the years in numerous declarations and international agreements [10–12]. This commitment has led to the creation of university networks at the local, national and international level, which are meant to share experiences, knowledge and instruments to integrate sustainability in their campuses across the globe [12,13]. These networks are envisaged as instruments to strengthen the political processes that enact the institutionalization of sustainability in universities [12] (p. 45). An example is RISU (University Sustainability Indicator Network), an inter-university forum on sustainability that will be explored in this article.

In this social responsibility and environmental commitment, Higher Education Institutions (HEIs) have developed a range of actions intended to incorporate sustainable practices in their teaching, research, outreach and internal operations within their campuses over the years [5,11,14,15]. However, Ferrer-Balas et al. of [16] indicated that HEIs should still promote a higher social commitment by further engaging and empowering all social groups, in particular, the internal personnel of the institutions, as to generate an active community with environmentally conscious members.

Key actors in the promotion and coordination of sustainability institutionalization in HEIs are “sustainability leaders” or “sustainable development champions”. Studies have stated that “this champion or champions must receive a proper SD education and be highly motivated and skilled in educating and motivating others to also become engaged in the SD journey” [5] (p. 795). The sustainability leaders should be recognized, supported, and connected to the head management board; in the words of Lozano [5], “a multi-stakeholder committee should be established to help the SD champion to plan and coordinate the implementation process” [5] (p. 794).

The drivers and barriers to change that hinder or ease the work of the sustainability leaders as agents of change have been previously reported in literature [16–18]. In this regard, Lozano [5] (p. 793) highlights the need “to be aware and to understand the barriers to change and conflicts that could arise in order to take the necessary steps to prevent or to solve them” and suggest that “some of the conflicts can be solved by taking a proactive instead of a reactive approach, this is the duty of the SD champion”. This study is aimed at sustainability leaders and thus identifies barriers for and drivers of sustainability change from their perspective, based on their daily experiences in the institutionalization of sustainability in HEIs.

According to [18], drivers for sustainability change can be classified as: (i) the internal structure of the institution (e.g., interdisciplinarity, existence of coordination bodies and projects the cooperation among students, teachers and researchers of the university, or flexible structures and management approaches); (ii) external factors to the institution (e.g., pressure from peer institutions or top-tier universities, external reputation, goodwill and credibility, and/or external financing programs to support sustainability initiatives); (iii) stakeholder role (for example, communication, leadership, shared governance, collaborative efforts, conscious people or committed individuals); (iv) the institutional framework (e.g., proficient mechanisms to monitor campus’ sustainability progress or combination of together top-down and bottom-up approaches in promoting sustainability changes); and (v) resource availability (e.g., external financing and/or financial support from the government). This study also found that the connecting drivers described by Lozano [9] to overcome closed systems can be specifically applied to HEIs by developing actions at the institutional level, such as the

integration of sustainable practices in strategic planning, institutional framework for sustainability, advice and support to the head management board, and any other development plans, goals, targets or set references specifically aimed at the general policy of the institution.

Simultaneous to the identification of emerging drivers for institutional change [16,19,20], a set of barriers to change that slow down the progress to incorporate changes in HEIs have been recognized [17,21–23]. A number of studies have explored the influence of these barriers on the integration of sustainability in HEIs; see [22–26]. The barriers that hinder sustainability incorporation can be categorized as [18]: (i) the internal structure of the institution (e.g., academic silos, slow bureaucracy hindering the processes of change, or conservative management); (ii) external factors of the institution (for example, disputed definitions of sustainability, lack of social pressures or lack of government regulation); (iii) the stakeholders' role (e.g., lack of environmental awareness, lack of interest and involvement, lack of leadership, or a poor internal communication between stakeholders); (iv) the institutional framework (e.g., unclear priority-setting and decision-making, lack of sustainability policy, conflicts between university goals, or needs and expectations of staff members); and (v) resource availability (such as lack of financial resources or lack of incentives). This study identified the fact that a high number of barriers come from the lack of an active role and involvement of different interest groups. This suggests that integration of SP problems often stem from a lack of consciousness, engagement and commitment in members of the HEI community.

According to Blanco-Portela et al. [18], the barriers to change also represent a number of obstacles in the path to sustainability, suggesting a noteworthy resistance to change pre-established operating systems. This resistance is a result of the existence of complex bureaucracy and rigid structures. It also assigns limited capabilities and multi-tasking responsibilities to sustainability leaders who often lack the time to address these matters or become overloaded, thus hindering and slowing down the integration of sustainability in HEIs. In addition, studies report that external pressure can play an important role in promoting the required institutional changes. In particular, the implementation of local actions to promote HEI sustainability is easier when these are endorsed by national policies. However, the absence of such external support becomes a barrier to change, highlighting the need for more external pressure to encourage the integration of sustainable practices in HEIs. Lastly, lack of resources has been also reported in the literature as a source of barrier to change [27]; however, this obstacle has received less attention.

A good understanding of the drivers for and barriers to change fundamentals in HEIs can provide new professionals with the necessary tools to face environmental challenges in their organizations [16,19,25]. This knowledge can also be particularly valuable in drafting a strategic plan for the integration of sustainability in those campuses. Blanco-Portela et al. [18] emphasized that by understanding in advance the potential obstacles, organizations can implement appropriate strategies beforehand to confront them efficiently. Such adaptive planning helps prevent wastage of efforts and resources, which are often limited. The existence of complete and realistic information mappings of operating drivers for and barriers to change helps sustainability leaders to have a clearer perspective and be able to recognize and derive focused efforts towards mitigating the resistance to change in their institutions; this is done by promoting controllers [28], leading to a status quo novo (SQN).

Higher educational institutions have been working and progressing towards the integration of sustainability, but in order to fully achieve a complete internalization of sustainable practices they need to further modify historically-established internal operative systems and rigid structures. As part of their own efforts towards sustainability, HEIs have been continuously developing new actions and strategies, while engaging a wide range of drivers of change. However, they also encounter obstacles that compromise their goals; of these, the most challenging is the human factor.

For all these reasons, this research is aimed at further characterizing and ranking the drivers for and barriers of sustainability integration in HEIs within their structures and operating functions.

The remaining part of the paper is structured as following: Section 2 discusses the methods; Section 3 analyses the findings; and Section 4 presents the conclusions.

2. Methods

A set of open-ended expert opinion interviews and a participatory workshop were designed to examine valuable insights on the drivers of and barriers to change reported in 45 Latin-American universities on their way towards the integration of sustainability in higher education. This participatory work was developed as a follow-up of the RISU Project, which focused on the preliminary 'definition of indicators for the assessment of the sustainability policies on Latin-American universities'. The project was developed in two stages: RISU I [29] and RISU II [30], a matter explored through questionnaires to 65 Latin-American Universities.

In order to explain the RISU project development stages, the preliminary indicator conceptualization will be referred to as 'Phase One', while the follow-up participatory expert opinion interviews are referred to as 'Phase Two'. In addition, the present study is also based on an exhaustive literature review of the current knowledge on barriers to and drivers for the integration of sustainability in HEIs [18].

Data Collection and Analyses

Two types of data were collected for this study: Those obtained from the focused interviews and those derived from participation in a workshop. The first dataset was a collection of expert opinions collated through focused interviews (as indicated by [31]) with the university leader of sustainability (ULSs) of 45 Latin-American universities that participated in project RISU I & II. They belonged to 10 Latin-American countries: Argentina, Brazil, Chile, Colombia, Costa Rica, Guatemala, Mexico, Peru, Dominican Republic and Venezuela. The ULSs are experts with key roles in the universities and precise knowledge of the internal progress towards institutionalization of sustainability.

The expert opinion interviews were initiated by contacting 65 ULS from the 10 countries that took part in 'Phase One' of the RISU project [29]. A total of 45 leaders agreed to participate in the expert opinion interviews (Phase Two) of the RISU project [30]. The geographic distribution of participants in each stage is shown in Figure 1. An outline for the focused interviews was designed to address different enquiries on the drivers and barriers found during the coordination of sustainability practices by the ULS at their institutions. A total of 45 remote interviews were conducted via Skype over the second semester of 2015 and the first one of 2016. The outline of the questions was sent to the ULS prior to the virtual interview so that they could gather all relevant information. The interviews took an hour on an average, as the questions covered a range of topics beyond drivers for and barriers to incorporation of sustainability.

The second dataset was obtained at an expert workshop conducted with some of the ULSs, as well as national coordinators of university networks from 9 Ibero-American countries: Argentina, Chile, Colombia, Costa Rica, Cuba, Mexico, Nicaragua, Dominican Republic, and Spain.

A thematic workshop with the invited Latin-American ULS was held on June 2016 in Morelos, Mexico, to discuss the drivers for and barriers of sustainability change identified within the university networks. The workshop brought together 23 experts from 11 Ibero-American countries. The results from the focused interviews with the 45 ULS were first presented to the participants. In order to further analyze them, these results were then put together in two raw lists, one for barriers and another for drivers. Both lists had grouped together responses with similar formulations. The participants were divided into groups of three and asked to examine the barriers and drivers. The lists were evenly sorted among the groups, so half of them focused on drivers and the other half on barriers. The teams had to look at the list and conduct an internal discussion to select the most relevant five factors, in order of priority. Each team filled five cards with their choices and arranged them in a note board to assist with the collective visualization of results. Figure 2 shows the ranking of the drivers for and barriers

of sustainability incorporation. The summary of the supplied feedback was collated, analyzed, and compared and contrasted between the interviews and the workshop.

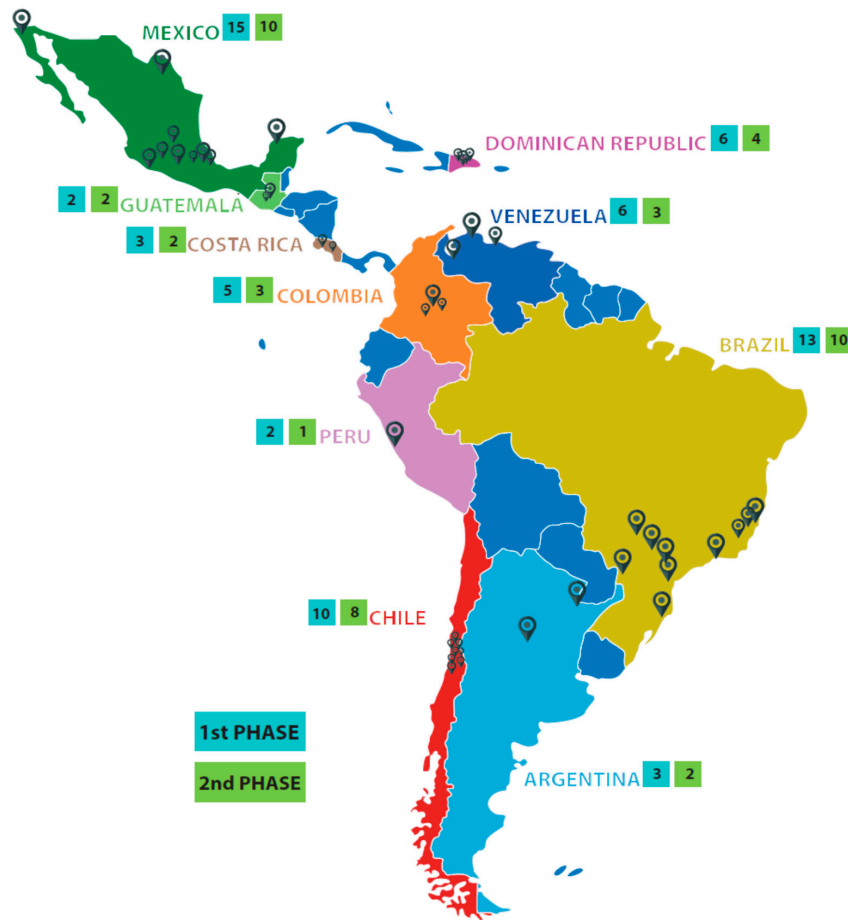


Figure 1. Distribution of participant universities per country at each RISU project phase; labelled in squares for phase I and circles for phase II (participatory survey).



Figure 2. Workshop participants identifying the primary drivers of and barriers to change faced on their experience. The central image offers a close look at the inputs generated by the groups from the selection exercise.

A Qualitative Data Analysis (QDA) was performed following the criteria set by [32] to examine the empirical data. First, the interviews were analyzed to identify the list of drivers for and barriers of change reported in the interviews by the ULS for the respective participant universities. Second, the results of the workshop were derived from the collective interpretation and prioritization of the

presented information by the participants (see Figure 2). The scores were estimated from the total number of times they were identified by ULSs in their responses at the interviews and added to the results from the prioritization exercises conducted at the workshop. The prioritization exercises identified the main drivers perceived by each group by listing them on a board; this helped identify and merge redundant elements. Next, from the list of barriers and drivers, each participant selected the three aspects most relevant to them. Lastly, the number of votes given to each driver was counted. The data were then compared by looking for similarities and differences in the prioritizations made during the interviews and the workshop. The drivers for and barriers to change identified by the interviews and workshop were respectively classified according to the pre-defined five main areas of influence previously described, as defined in [30].

3. Findings and Discussion

The feedback obtained by the expertise, experience and influence of several ULS in Latin-American HEIs was individually examined in order to identify management priorities. The following sections present the results of the recognition and prioritization of the main drivers for HEI's sustainability, followed by identification of the main barriers to change.

3.1. Findings on Drivers for Change towards Sustainability in HEIs

There were eight drivers of sustainability, highlighted by the interviews or the workshop (see Table 1). Five drivers were exclusively reported in the interviews and one was solely identified at the workshop.

Table 1 also shows that robust support from the head management board is regarded as highly relevant by the experts from both analytical sources. However, neither marketing and international standards nor committed resources were highly considered by the workshop participants, despite being highly ranked in the interviews. In turn, institutionalization of the environmental program and academic community engagement was highly ranked by workshop participants, but received a considerable less consideration by the ULS.

Table 1. Summary of drivers of change identified from the compilation of results from the interviews and the workshop. Success factors reported only at the interviews are highlighted in grey.

Drivers for Change	Description and Remarks
s.1. Commitment of dept. staff with assumption of roles and responsibilities	Any department of the academic institution reacting positively with their commitment and involvement in the transformation of the institution. They understand the need to rethink their daily activities by incorporating sustainability criteria. Departments and schools lead projects, assuming their responsibility in design and execution.
s.2. International influence & standards. Environmental certifications and good practices marketing	The status of the academic institution is benefited (nationally and internationally) when the university is committed to sustainability matters. Students increasingly prefer to study in universities that are actively engaged in these matters. With regard to global issues, internal actions are widely supported to move from theory to practice. Several universities have certifications of environmental quality, and this stand makes them more adept to support any actions. Moreover, some universities compete for international rankings and thus they are extra motivated to follow good practices.
s.3. Allocation of human resources	Employment of personnel. Designation of a ULS and a work team with full time dedication (or combined with teaching). They manage the integration and development of sustainability practices at the institution.

Table 1. Cont.

Drivers for Change	Description and Remarks
s.4. Consistent institutional legislation	Existence of an environmental sustainability policy in the institution. Water, waste and energy management are regulated by institutional programs. The action plan of the institution has well-defined references to the assimilation of sustainable development in teaching and research practices. Social responsibility and liability is regulated, so any environmental problem that affects the academic community and the nearby settlements can be effectively addressed.
s.5. Engagement of the academic community	Participation and support of the academic community for activities organized by the sustainability office.
s.6. Networking	Fluent exchange of knowledge and experiences between universities is perceived as highly beneficial. A positive feeling of reinforcement comes from sharing with others the same goal. Moreover, collaboration also promotes joint participation in transversal research between universities.
s.7. Institutionalisation of the sustainability	A sustainable development program that redefines the whole institutional framework. Institutional action plans have a long-term focus. Sustainability alters the organizational structure, as well as teaching and research practices. Environmental issues are progressively more prominently embedded in the culture of the institution. Each new action executed incorporates more criteria in terms of sustainability.
s.8. Support from university leaders and policy makers	The management board of the institution firmly supports the sustainability project. Interest is solidified with financial resources in a dedicated budgeted line. Any approval of new policies, regulations and guidelines at all levels of the institution to integrate sustainable practices is backed by the directorship.
s.9. Funding and long-term availability of resources	The existence of funding under a strategic planning that guarantees the long-term availability of resources for the institutionalization project. The institution can allocate resources for development plans that integrate sustainable practices.
s.10. Small size of the institutions	Smaller institutions tend to allow for faster processing. The management board is more approachable. Actions and activities can be more easily communicated and have a deeper impact on the community.
s.11. Improvement of the communication channels	Effective communication that reaches the whole community. Department chiefs boost and reproduce the information in their schools. The institutional website has an area to disseminate details of sustainability activities, actions and projects within the university.
s.12. Private management	Private universities have less bureaucracy and the allocation of resources is less restricted
s.13. Efficient management on changing the internal organizational structure	Existence of an efficient management that encompasses the integration of sustainability. Flexibility of curricula. Sustainability has been incorporated transversely or in sections of the curricula. Integration of the environmental management with the teaching, research and social responsibilities of the institution. Sustainable development is not disconnected from academic practices and is solely focused on the compliance of legal regulations.

Figure 3 shows the relative importance given to the different drivers of change per area of influence. International influence (s.2), support from university leaders (s.8), and committed personnel (s.1) were the drivers most highly ranked in the interviews. Institutionalization of the environmental program (s.7) and university leaders support (s.8) were the drivers most highly ranked at the workshop.

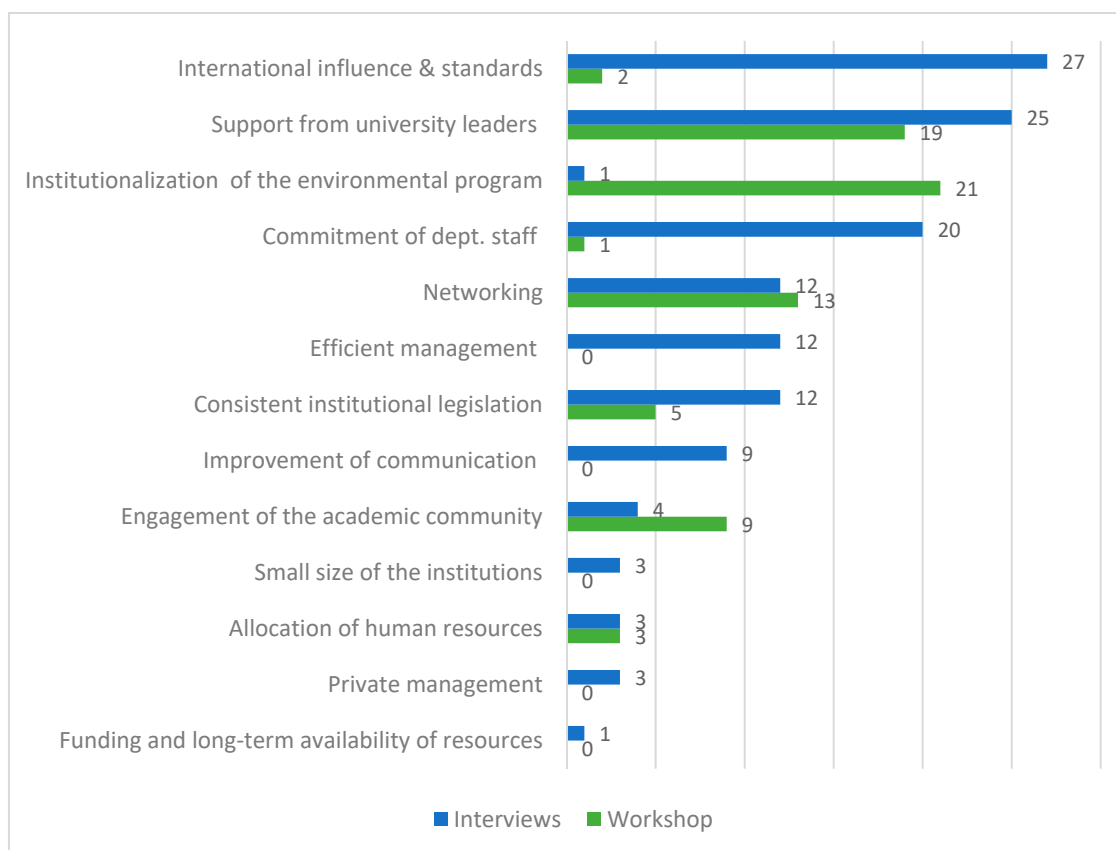


Figure 3. Comparison of the respective scores obtained from the interviews and workshop on the importance and prioritization of drivers of change.

Figure 3 shows that ULS see international influence and standards (s.2) as the strongest drivers; however, the workshop participants gave it a low relevance in the prioritization exercise. A similar result was found for the commitment of departments (s.1) with a strong relevance given to it by ULSs, but not by workshop participants. On the other hand, institutionalization of the environmental program was given high priority by workshop participants, but not perceived as a huge factor by ULSs in the interviews. In turn, networking (s.6) and university leaders support (s.8) was highly ranked by ULSs and workshop participants alike.

The main differences found between the interviews and the workshop were that the sustainability leaders identified a larger number of drivers, and that they frequently attributed success to strong support from the institution head management board (s8, s.1, s.13, s.4). In turn, workshop participants identified more global and structural drivers at the institutional level (s.7, s.6, s.5). These differences can be attributed to the daily need of the sustainability leaders to be able to develop actions towards the integration of sustainable practices.

3.2. Findings on Barriers to Change towards Sustainability in HEIs

The findings of the analysis of the interviews with the ULSs and the workshop participants identify a total of 9 barriers to change reported by both sources and 6 reported by a single one; in particular, 7 of these came from the experts and the remaining from the workshop participants. Table 2 provides a description of each of them.

Table 2. Summary of the barriers identified from the compilation of results from the interviews and the workshop. Barriers to change reported by a single group are highlighted in grey.

Barriers	Description and Remarks
b.1. Inconsistent institutional legislation and implementation	Even though the management board expresses its commitment towards the institutionalization of sustainability, the process of setting up a sustainability policy and associated ordinances to regulate specific actions is slow or absent. In multiple institutions, such commitment, despite being in the vision and mission of the university, does not move from theory to practice. As a result, the environmental management programs do not become institutionalized, and thus, only isolated actions are implemented.
b.2. Complex bureaucracy	Government hindrances to budget allocation, excessive paperwork, delays in processing, and the need for guarantees from different departments for the approval of resources, and dedicated space or time by personnel may obstruct the actions, and slow down the progress of the integration. Execution time can stretch with action requirements.
b.3. Inefficient communication	Communication channels in institutions are not effective. Lack of assertive communication among the academic community is an obstacle to change, leading to isolated actions, and duplicity of efforts and resources. Scarce dissemination of details of project activities and the efforts of change and achievements from devoted students or lecturers. ULSs are forced to repetitively remind all involved of the purpose of the project at all levels, as the progress stalls when communication is halted. Thus, this activity is strongly perceived as time and resource consuming, and is proportional to institution size. In addition, departments might carry out isolated actions, directed at their members, without knowing of institutional projects with a central office and representatives that could coordinate their development.
b.4. Lack of education staff involvement.	Lecturers are swamped by the number of hours dedicated to teaching, and do not have time to work on other activities. This is more common with older lecturers, who are reluctant to participate in any activity that they were not employed for. Environmental matters are perceived as a 'filler' detractor from the 'real' knowledge that the student are required to learn as per their educational plan.
b.5. Lack of long-term planning, systematization and continuity.	The high turnover of personnel slows down any action, since they often require starting from zero with the arrival of a new employee. After the departure of the dedicated person/s from the institution, the project is often lost, highlighting the fact that it was not institutionalized. All efforts and resources invested are thus lost. This is also evident with the arrival of a new chancellor, as all project efforts are unknown to new staff, receive no continuity, and years of work and allocated resources are lost.
b.6 Lack of recognition	The relevance given to the integration of sustainability is highly situational, mainly associated with a specific date or event; however, after it, the matter is set aside, displaced by other projects and interests of the institution. Institutional planning does not formally recognize the project of institutionalization of sustainability, and so the resources for its execution are limited or non-existent. At the same time, other projects are prioritized, restraining the integration of sustainable higher education.
b.7 Lack of available resources	Lack of economic resources and academic personnel dedicated to developing different actions, projects and activities. The management board does not perceive sustainability projects as priority, therefore it does not allocate economic resources or personnel (coordinators and work teams) to develop them.

Table 2. Cont.

Barriers	Description and Remarks
b.8 Resistance of different groups. Lack of social legitimacy	Generalized reticence to modify any behavior and activity that have been carried out in the institution for a long time. Reticence to leave routines, and transit towards more responsible actions. This attitude is generalized, shared by all groups of the academic community—students, lecturers, administrative staff, and service personnel. A culture of ‘we’ve done it that way, and it works, so there is no reason for change’ causes serious impediments to the success of any action.
b.9 Rigid and compartmentalized internal organizational structure	Operating system is very rigid, with several steps required to approve any change. The academic structure is also very fixed, with delimited curricula, being highly specialized, missing a holistic approach or space for transverse actions. Any transverse action between departments and schools is tiresome and costly, even for courses on dedicated educational planning.
b.10. No assumption of responsibilities	There is a general lack of initiative by the personnel in departments, either to take on leading roles on sustainability activities, or to suggest new actions. The SL tries to promote the assignation and assumption of responsibilities, but this has a low initial response, which decreases over time.
b.11 Large size of the institutions	A large number of schools and campuses, together with the large number of lecturers and students, makes it much harder to reach and stimulate the engagement of the academic community in processes aimed at the integration of sustainability
b.12. Lack of student’s engagement in extra-curricular activities	It is hard to encourage the student to participate due to the number of academic activities, which limits their time to participate in other activities. There is no academic support from department boards to stimulate students to take part in extra-curricular activities
b.13. Social, economic and political context of the country	Budget cuts to public universities, political instability of governments, and social crises cause sustainability to be recognized as ‘low priority’, thus leading to a deprivation of resources for its execution.
b.14. Lack of support from university leaders and policy makers	The central management board of the institution does not back the project, show interest, allocate resources to develop it, and/or decide to assign time to its personnel to attend to sustainability matters.
b.15. Lack of an institutional framework for sustainability	The integration of sustainability practices is not supported by the directorship. Therefore, it is solely developed with isolated actions and small projects, orchestrated voluntarily by lecturers without any assigned time to fulfil these tasks. As a consequence, their actions do not alter structures and practices of the institution.

The relative importance given to the barriers to change was estimated from the number of times they were respectively identified by ULS in their responses at the interviews and at the prioritization exercises, with the same method as for the drivers. Resistance of different groups was the most frequently reported issue. Results can be seen in Figure 4.

Figure 4 shows that nine of the 15 barriers to sustainability were identified in both. Resistance of different groups was regarded as the most relevant factor by both sources. This appears to be the main obstacle to transformation of HEIs. The results are coincident with [10], who pointed out that stakeholders were sustaining the main barriers to change. At the same time, observed divergences can be attributed to the different roles acquired. The ULSs prioritize the barriers as lack of support of university leaders and policy makers, lack of resources, size of the institution, and engagement of students and education staff. These primary concerns likely come from the realities and obstacles they face on a daily basis. The workshop targeted consensus from coordinators on global problems; thus, lack of internal legislation and regulation, and complex bureaucracy took a more prominent role. Nonetheless, the social and political context of the country was not prioritized as an important barrier.

The main barrier to change found indicates that despite years of international agreements, dissemination of guides for good practices, and increasing environmental problems (among other calls and actions to address unsustainable practices), the human factor stays as the main obstacle in the sustainable transformation of universities. In this regard, Verhulst and Lambrechts [17] highlighted the

resistance to change from different parties of interest in HEIs as the most relevant barrier against the desired organizational changes. Therefore, it is necessary to implement individual actions specifically targeted at different groups (students, lecturers, administrative staff and services personnel), so that the integration of sustainability effectively engages them.

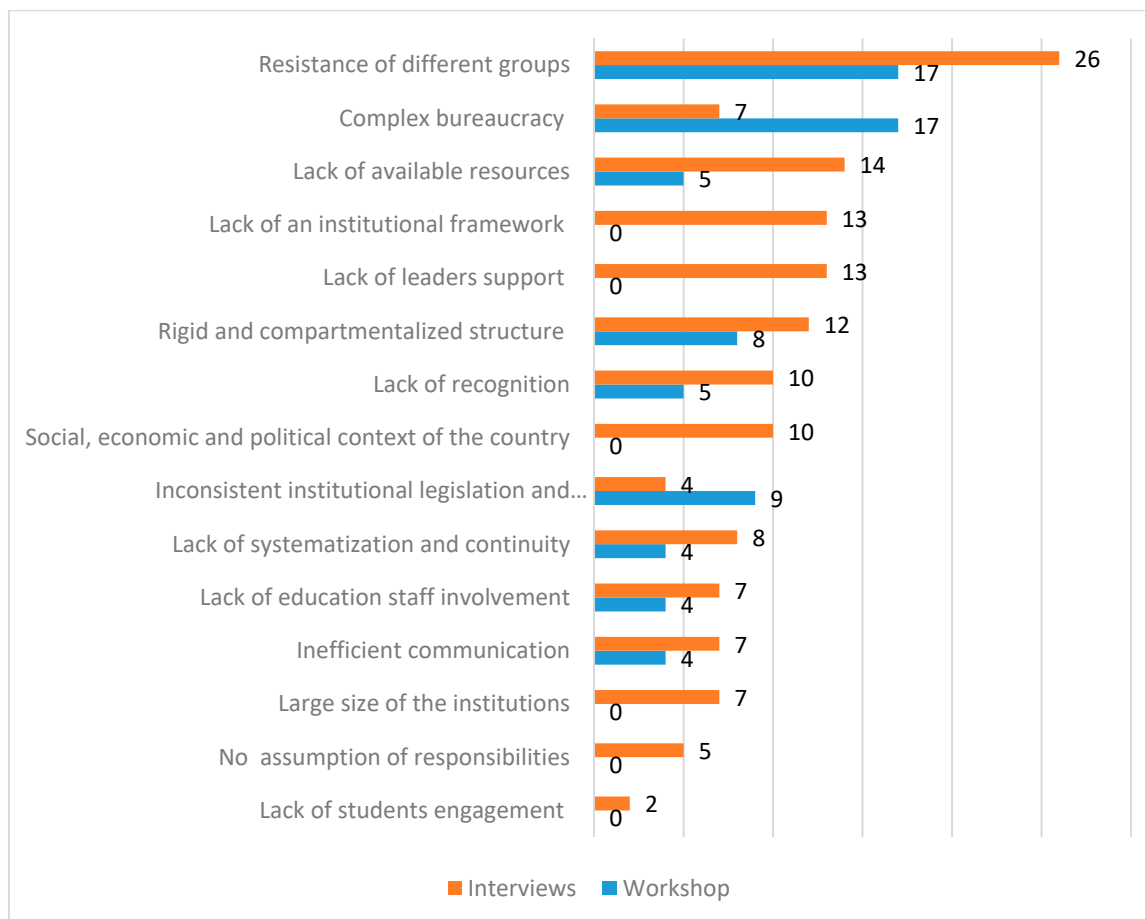


Figure 4. Comparison of the respective scores obtained from the interviews and workshop on the importance and prioritization of barriers to change.

3.3. Relationship between Drivers for and Barriers to Change towards Sustainability in HEIs

The variety of drivers for and barriers to change can be further examined within their respective areas (see Table 3), providing an insight into the problems and solutions emerging at the different dimensions of the academic institutions.

The responses on drivers for and barriers to change, identified from the workshop and interviews, were classified by areas of influence [18], in order to analyze and compare their relative contributions (see Figure 5).

Figure 5 shows that stakeholders account for the highest share of the drivers for and barriers to change, with strong similarity in numbers; other areas are less balanced. This result follows the same pattern as those reported in literature; see [18]. The stakeholders in universities (teachers, students and administration staff) are key factors for change and are thus elements through whom actions can be prioritized. In contrast to the wide range of identified issues and response actions present for ‘stakeholders’, identified drivers for ‘institutional framework’ and ‘internal structure’ are very few, despite these being recurrently seen as barriers that need to be prioritized and overcome. This result matches those reported in literature; see [18] to understand the lack of institutional recognition for the sustainability issue and the small number of solutions offered by HEIs to address the problem.

This can be directly related to the problematic thought process of stakeholders, as decision-making is highly dependent on how the involved groups think and act. No changes can be made in the internal structure and functioning of the HEIs without the awareness and engagement of the stakeholders.

Table 3. List of drivers for and barriers to change respectively organized per areas of influence. The grey background highlights barriers and drivers that do not have a counterpart (i.e., either a driver of change that has emerged without an existing barrier, or an observed barrier lacking a driver to confront it).

Scope	Barriers to Change	Drivers for Change
Internal structure	Rigid organizational structure	Efficient internal management
	Complex bureaucracy	Small size
	Size of the institution	Private institution
External factors	Social and political context of the country	Networking
		Good practices marketing
		International influence & standards.
		Environmental certifications
Stakeholders	Lack of university leaders support	University leaders support
	Inefficient communication	Assertive communication
	Lack of responsibilities	Committed personnel, dept. staff with assigned roles and responsibilities;
	Lack of education staff involvement	engagement of the academic community
	Lack of student participation	
Institutional framework	Group resistance to change	
	Inconsistent legislation	Consistent institutional legislation
	Lack of an institutional framework for sustainability	Institutionalization of sustainability
	Lack of long-term planning and continuity	
Resources	Lack of recognition	
	Lack of resources	Allocated human resources; funding and long-term availability of resources

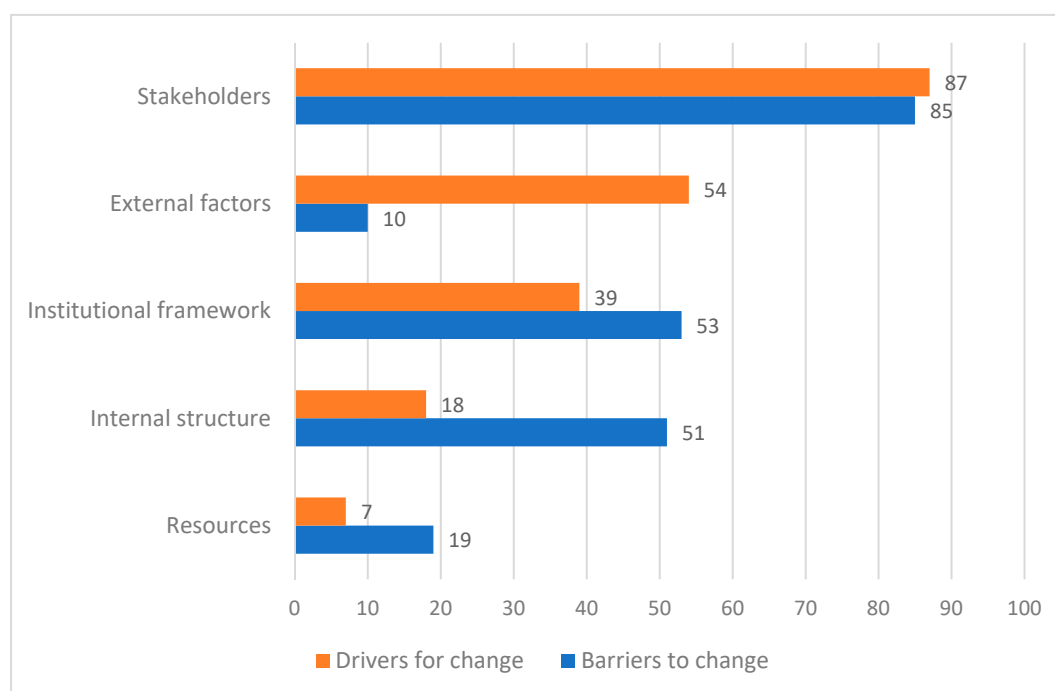


Figure 5. Comparison between the absolute frequency of drivers for and barriers to change, identified from the workshop and interviews per areas of influence. The total rank per category indicates the added number of remarks made by all participants in each area.

Figure 5 shows that for each point on the list of barriers, there are corresponding drivers that address them; four out of five areas of influence display this. In particular, with regard to ‘stakeholders’ as an area of higher priority, there is a strong consistency between barriers to and drivers for change (i.e., group resistance to change can be confronted by committed personnel, dept. staff with assigned roles and responsibilities, and engagement of the academic community). This result follows the idea that the key role in the integration of sustainability lies in the human dimension; see [8,24,26,33–35]. A similar pattern can be seen in three other areas of influence: Resources, internal structure, and to a lesser degree, institutional framework. In the last area, some correspondence between barriers to and drivers for change has been identified. For instance, barriers to change related to the rigidity of administrative structures, organizations and bureaucracy can be confronted with efficient internal management as a driver for change. This vision was already suggested by the authors of [19,25]. Therefore, the complexity of necessary changes in an organization requires a flexible administration that can adapt to its operating mechanism, while also promoting and supporting consensus and cooperation between departments, in order to assimilate interdisciplinary actions. Universities that are more resilient are more capable to respond to a problem that changes over time.

In addition, some local drivers to change cannot be seen as ‘solutions’, as they result from particularities that offer additional capabilities to ease processes; for instance, small or private institutions. However, there are some cases where barriers to and drivers for change have no counterparts, this is, success factors that are not related to problems and/or problems still lacking specific solutions (see items highlighted in grey in Table 3). The few elements missing solutions mainly belong to the area of institutional framework, but also to a lesser degree, to external factors. This lack of correspondence between barriers to and drivers for change in these areas of influence highlights the importance of planning global actions at the organizational level. These mismatched results also highlight the need for side efforts that offer effective solutions to observed problems; see [4]. Devoting efforts to solutions aimed to address problems that are not present or not perceived results in wastage of limited resources, diversion of the work of the SL, and slowing down of the progress of change. Thus, good management relies on solid diagnosis of problems and strategic planning of actions that are lined with the identified barriers for change.

A HEI’s transition to sustainability is achievable, and to that end, the valuable success factors identified are: (i) firm support of university leaders; (ii) availability of dedicated resources; (iii) efficient internal management of change; and (iv) committed personnel that can assist with the transition.

4. Conclusions

Higher education institutions are where future leaders are trained, and they thus have a prominent role in social responsibility. Sustainable environmental practices form a part of that accountability. However, the complexity of environmental challenges mandates that universities take firm steps to integrate sustainable solutions. Networking, generation of knowledge, and development of strategic action plans to effectively approach the wide diversity of problems at the local level require flexible internal structures in universities.

This participatory study was thus carried out to bridge the lack of information on the internal processes undertaken by regional HEIs in the Latin American region to ensure sustainability, and the various approaches taken to achieve their goals. This paper highlights the key areas wherein HEIs can address “soft” environmental issues, such as drivers for, and barriers to, sustainability. By reviewing the experiences of experts from a network of Latin-American HEIs, the participants of these institutions, as well as any other HEI, can benefit from the lessons compiled. This background knowledge can be used as a referential framework by HEIs to identify potential obstacles to their own processes, and be able to plan in advance the necessary actions required to achieve appropriate solutions.

The results obtained by this study indicate that Latin-American universities have similar drivers for, and barriers to, sustainability change, as those reported for universities in other geographic contexts. Thus, the findings of these interviews can be generalized to suit the diversity of cultures and

context of institutions globally. The present study offers a list of drivers for and barriers to change from ongoing experiences as guidelines for universities that are initiating the process of integrating sustainability in higher education, or those that are looking for models and referential support from other experiences.

Specifically, the list of drivers for and barriers to change ought to be taken into consideration for developing appropriate case-by-case actions that optimize the use of time and resources and are ready to adapt to the generalities and particularities of the HEIs. For instance, new policies on water and energy consumption, eco-friendly transport access, waste management, etc. should consider these success factors (e.g., incorporate education measures that cope with resistance to change towards increased recycling and energy saving, set up flexible dynamics that overcome rigidity of structures for installing energy-saving modules, establish and reaffirm sustainability goals in the order of managerial priorities, etc.).

Networking initiatives such as the RISU project provide opportunities to recognize, create, or act upon processes of change towards HEI sustainability, share information, and seek potential partners to implement joint efforts. Overall, achieving sustainability requires adaptable universities that are prepared to respond to the urging social, environmental, and economic changes demanded by the 17 goals of sustainable development of the United Nations for 2030. Sustainability in higher education institutions offers a referential model that leads the way for the transformation of other types of institutions towards a workable future.

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